A Comparative Analysis of Biometric and Manual Attendance Measures using Queueing Theory

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Abstract: *We can see that in many companies manual methods are commonly used for taking attendance. However, this may lead to the possibility of staff giving dummy attendance for absent colleagues. This study aims to compare the efficiency of a biometric-based attendance system with that of manual attendance. To evaluate the service efficiency of the two attendance methods, the study uses a single and single server queueing model. The variables measured include the arrival rate (λ) and service rate (μ), which were analyzed simultaneously Primary data were obtained through the observation of both biometric and manual attendance systems. The results indicate that the biometric attendance system was more efficient than the manual attendance system, based on the performance measures of the queueing system. Therefore, the findings suggest that implementing a biometric-based attendance system can help improve attendance tracking and reduce the possibility of fraudulent attendance practices.*

Keywords: Queueing analysis, service time, biometric attendance, arrival time

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